

CPP 程式設計題

命題者：LYQ

題目名稱(中文/英文)：Infinite Fibonacci

主要測試觀念：ARRAYS, STRINGS, RECURSION

Basics

- ☐ C++ BASICS
- ☐ FLOW OF CONTROL
- ☒ FUNCTION BASICS
- ☐ PARAMETERS AND OVERLOADING
- ☒ ARRAYS
- ☐ STRUCTURES AND CLASSES
- ☐ CONSTRUCTORS AND OTHER TOOLS
- ☐ OPERATOR OVERLOADING, FRIENDS, AND REFERENCES
- ☒ STRINGS
- ☐ POINTERS AND DYNAMIC ARRAYS

Functions

- ☐ SEPARATE COMPILATION AND NAMESPACES
- ☐ STREAMS AND FILE I/O
- ☒ RECURSION
- ☐ INHERITANCE
- ☐ POLYMORPHISM AND VIRTUAL FUNCTIONS
- ☐ TEMPLATES
- ☐ LINKED DATA STRUCTURES
- ☐ EXCEPTION HANDLING
- ☐ STANDARD TEMPLATE LIBRARY
- ☐ PATTERNS AND UML

題目說明：

In mathematics, the Fibonacci numbers are the numbers in the following integer sequence, called the Fibonacci sequence, and characterized by the fact that every number after the first two is the sum of the two preceding ones:

0, 1, 1, 2, 3, 5, 8, 13, ...

The sequence F_n of Fibonacci numbers is defined by the recurrence relation:

$$F_n = F_{n-1} + F_{n-2}, n \text{ is a positive number and } n \geq 2,$$

$$F_0 = 0, F_1 = 1.$$

輸入說明：

Enter 3 numbers separated by one space, these 3 numbers are between 0 and 1500 (inclusive).

輸出說明：

Output the Fibonacci value of corresponding input numbers to your console. Output format is in the sample output.

Time limit: $\leq 8s$, (approximate time, just don't use too much time)

You can't read any file or use any "literal constant" (except F_0 and F_1) in your program. In other words, you must compute the value when program is executed.

IO 範例：

Sample Input	Sample Output
0 5 10	0: 0 5: 5 10: 55

- ☐ 易，僅需用到基礎程式設計語法與結構
- ☒ 中，需用到多項程式設計語法與結構
- ☐ 難，需用到多項程式結構或較為複雜之資料型態或結構

解題時間：20.1 分鐘

其他註記：

No need for error checking.